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Environmental Protection
Agency

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EPA

Restricting Service Station Wastes In Shallow Injection Wells

EPA has sampled wastewater at motor vehicle service stations that use shallow injection wells and found that more than half these samples far exceed the Maximum Contaminant Levels (MCLs) established under the Safe Drinking Water Act. In addition, samples did not pass new limits established under the Resource Conservation and Recovery Act (RCRA) and would be considered hazardous waste.

EPA and State authorities urge service stations that use discharge pits, dry wells, cesspools, septic system drain fields, or other shallow injection wells to close them and dispose of their waste by other means.

BACKGROUND

Ground water provides approximately 50 percent of the nation's drinking water. Seventy-five (75) percent of our cities derive all or part of their drinking water from underground sources, and rural America is 95 percent dependent upon ground water. It follows that underground sources of drinking water must be kept free of contamination. The U.S. Environmental Protection Agency (EPA) is required by the Safe Drinking Water Act to protect the quality of these drinking water sources.

To fulfill this responsibility, EPA is empowered to regulate the disposal (injection) of fluids by wells of all kinds. Under EPA's Underground Injection Control (UIC) regulations, an injection well can be thousands of feet deep or it can be as shallow as a discharge pit, dry well, cesspool, or septic system drain field.

EPA's UIC programs have been in operation since 1983. Only since 1988, however, has EPA been able to turn its attention to the ground-water threat from shallow injection wells. EPA has banned the injection of hazardous wastes into these wells.

DO AUTOMOTIVE SERVICE STATION WASTES THREATEN GROUND WATER?

Tests conducted by EPA on fluid samples from service station bay drains indicate that improper disposal of waste generated during vehicle servicing poses the threat of ground-water contamination. Waste oil, antifreeze, and solvents are washed into floor drains that often are connected to septic systems with shallow injection wells. Many of the ingredients of these fluids are water soluble and are not separated from the wastewater by conventional oil-water separators. Shallow injection wells are designed to allow drainage of fluids into the subsurface. As a result, contaminated fluids migrate through the soil to our underground sources of drinking water.

HAVE AUTOMOTIVE SERVICE STATION WASTES BEEN LINKED TO GROUND-WATER CONTAMINATION?

While specific causes of drinking water contamination are difficult to document conclusively, EPA has identified more than 100 cases where shallow injection wells appear to be an important source of contamination. For 35 of these cases EPA estimates that a total of more than 1.5 million people could have been affected. Eight of these cases resulted from shallow injection of automotive wastes, potentially affecting at least 122,000 people. These figures underestimate the population potentially exposed, since data frequently are unavailable on the number of people who use a contaminated drinking water source.

DO SERVICE STATION WASTES EXCEED EPA STANDARDS?

Waste oil may contain several hundred milligrams per liter of benzene and other volatile organic compounds. Waste solvents contain a high percentage of chlorinated hydrocarbons. Some of these chemicals are known or suspected carcinogens. For all of these chemicals, there are EPA standards, Maximum Contaminant Levels (MCLs) established under the authority of the Safe Drinking Water Act (SDWA). Typical fluid samples contain

chemicals in concentrations that greatly exceed EPA drinking water standards.

EPA tested wastewater samples from 17 vehicle repair and maintenance shops in a program to determine the environmental impact of motor vehicle waste disposal wells. EPA found that all the samples exceeded the MCLs for lead and cadmium. In nine of the samples, EPA determined the concentrations for benzene and trichloroethylene. All nine samples exceeded the benzene MCL, and eight of nine exceeded the trichloroethylene MCL. EPA has found similar results in other tests nationwide.

In most cases, typical fluid samples exceed EPA's recently revised criteria for identifying properties or characteristics that define a waste as hazardous under the Resource Conservation and Recovery Act (RCRA). Benzene and a number of chlorinated solvents are among the 25 chemicals that have been added to EPA's Toxicity Characteristics list under RCRA. EPA has found that samples of used crankcase oil from automobiles measure ten to twenty times the permissible benzene limits.

In addition, any facility that generates more than 275 gallons of wastewater per month containing any of the newly listed chemicals in amounts exceeding EPA's regulatory levels needs either to recycle the material or to dispose of it as hazardous waste. Effective March 28, 1991, facilities that generate more than 27 gallons of wastewater per month were included in this requirement. A typical garden hose delivers 27 gallons of water in less than three minutes. (Facilities that generate less than 27 gallons of wastewater per month are conditionally exempt).

WHAT ALTERNATIVES DO OWNERS OF SHALLOW INJECTION WELLS HAVE?

EPA believes that owners and operators of automotive service stations or similar operations should immediately stop using shallow injection wells to dispose of such wastes as battery acid, used oil, antifreeze, and degreasers and other solvents. The Agency has enlisted the commitment of trade associations nationwide to spread this message, contained in the brochure, *Does Your Facility Generate Automotive Service Waste?*. To obtain a copy of the brochure, contact the Underground Injection Practices Council at:

UIPC
525 Central Park Drive - Suite 304
Oklahoma City, OK 73105
(405) 525-6146
(800) 762-0190

EPA originally required service station owners and operators to inventory injection wells and to provide this information to their State UIC Program within one year of the establishment of the State UIC Program.

An owner or operator may wish to apply for a Class V UIC well permit from the State UIC Program and demonstrate that the well or wells do not threaten underground drinking water sources. Each State UIC Program has its own permit procedures and requirements. Some States ban all shallow injection wells, not just those receiving hazardous wastes.

The American Petroleum Institute (API) and a number of trade associations are developing a recommended practice for handling water discharges from automotive service facilities located at petroleum marketing operations. API has identified several disposal alternatives to shallow injection. To receive a copy of the recommended practice (to be completed during the summer of 1991), ask API for RP 1633, *Technical Guidance for Handling Water Discharges From Automotive Service Facilities*. API can be reached at:

American Petroleum Institute
1220 L Street, NW
Washington DC 20005
(202) 682-8000

OTHER CONTACTS

Many trade associations, such as API, the National Automobile Dealers Association (NADA), the National Independent Autodealers Association (NIADA), and the Society of Independent Gasoline Marketers of America (SIGMA) will provide assistance to owners and operators of automotive service station wells. Owners and operators may need to contact the agency responsible for their State's UIC program or the EPA Regional office covering their State.